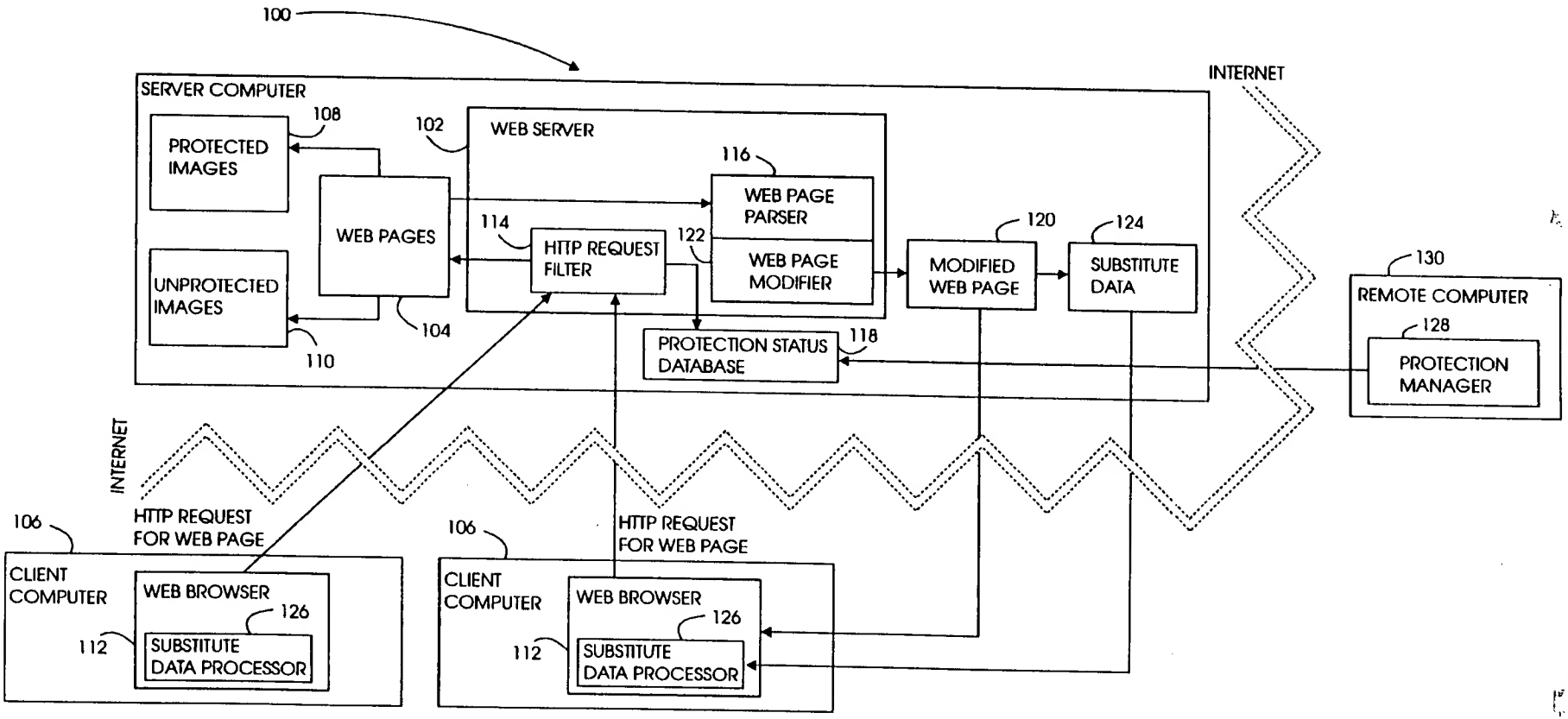
100
SERVER COMPUTER
INTERNET
108
PROTECTED IMAGES
102
WEB SERVER
116
WEB PAGE PARSER
WEB PAGES
114
HTTP REQUEST FILTER
122
WEB PAGE MODIFIER
120
MODIFIED WEB PAGE
124
SUBSTITUTE DATA
130
REMOTE COMPUTER
128
PROTECTION MANAGER
UNPROTECTED IMAGES
104
110
PROTECTION STATUS DATABASE
118
INTERNET
106
HTTP REQUEST FOR WEB PAGE
CLIENT COMPUTER
WEB BROWSER
126
112
SUBSTITUTE DATA PROCESSOR
106
HTTP REQUEST FOR WEB PAGE
CLIENT COMPUTER
WEB BROWSER
126
112
SUBSTITUTE DATA PROCESSOR

FIGURE 1

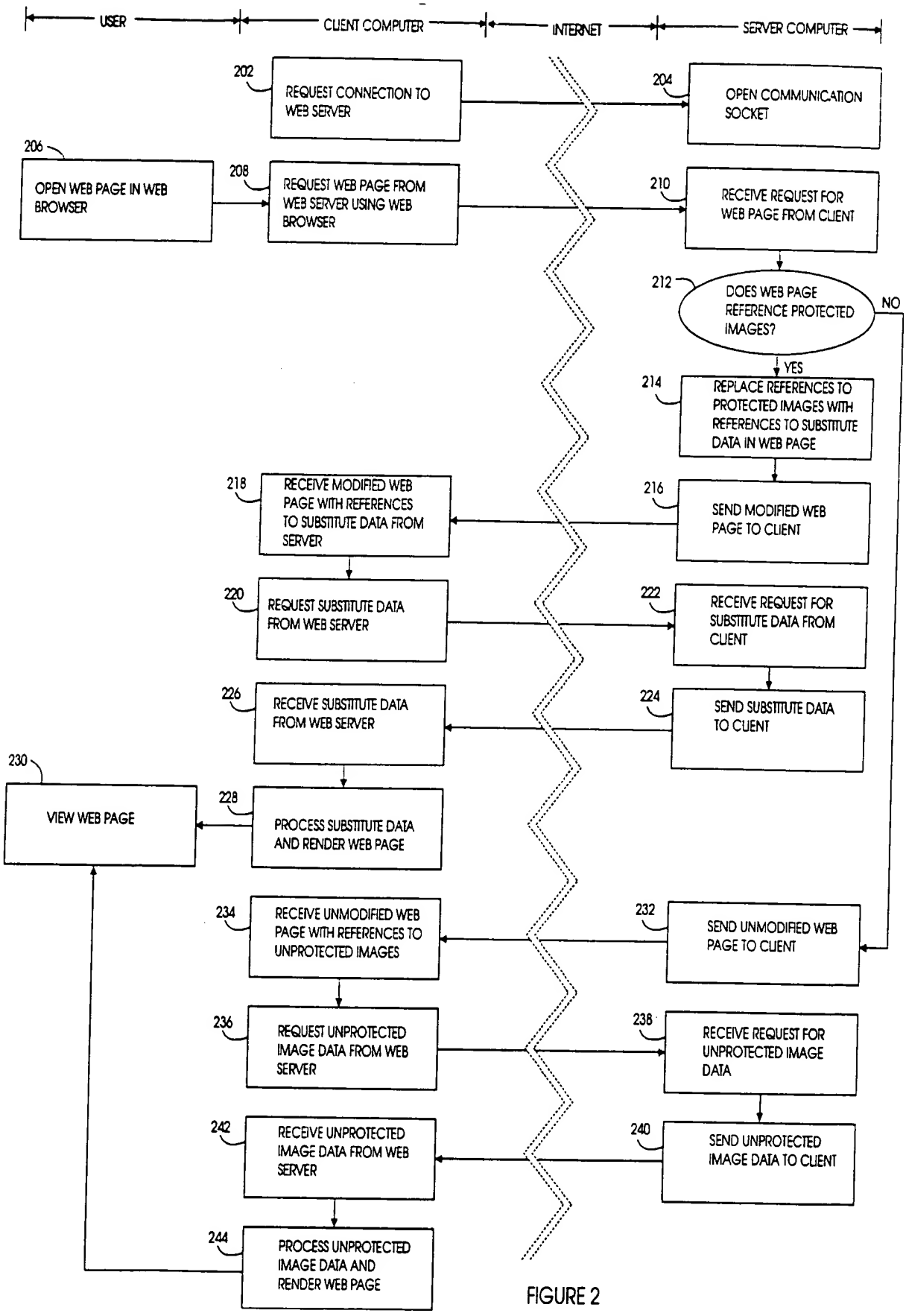
USER
CLIENT COMPUTER
INTERNET
SERVER COMPUTER
202
REQUEST CONNECTION TO WEB SERVER
204
OPEN COMMUNICATION SOCKET
206
OPEN WEB PAGE IN WEB BROWSER
208
REQUEST WEB PAGE FROM WEB SERVER USING WEB BROWSER
210
RECEIVE REQUEST FOR WEB PAGE FROM CLIENT
212
DOES WEB PAGE REFERENCE PROTECTED IMAGES?
NO
YES
214
REPLACE REFERENCES TO PROTECTED IMAGES WITH REFERENCES TO SUBSTITUTE DATA IN WEB PAGE
216
SEND MODIFIED WEB PAGE TO CLIENT
218
RECEIVE MODIFIED WEB PAGE WITH REFERENCES TO SUBSTITUTE DATA FROM SERVER
220
REQUEST SUBSTITUTE DATA FROM WEB SERVER
222
RECEIVE REQUEST FOR SUBSTITUTE DATA FROM CLIENT
224
SEND SUBSTITUTE DATA TO CLIENT
226
RECEIVE SUBSTITUTE DATA FROM WEB SERVER
228
PROCESS SUBSTITUTE DATA AND RENDER WEB PAGE
230
VIEW WEB PAGE
232
SEND UNMODIFIED WEB PAGE TO CLIENT
234
RECEIVE UNMODIFIED WEB PAGE WITH REFERENCES TO UNPROTECTED IMAGES
236
REQUEST UNPROTECTED IMAGE DATA FROM WEB SERVER
238
RECEIVE REQUEST FOR UNPROTECTED IMAGE DATA
240
SEND UNPROTECTED IMAGE DATA TO CLIENT
242
RECEIVE UNPROTECTED IMAGE DATA FROM WEB SERVER
244
PROCESS UNPROTECTED IMAGE DATA AND RENDER WEB PAGE

FIGURE 2

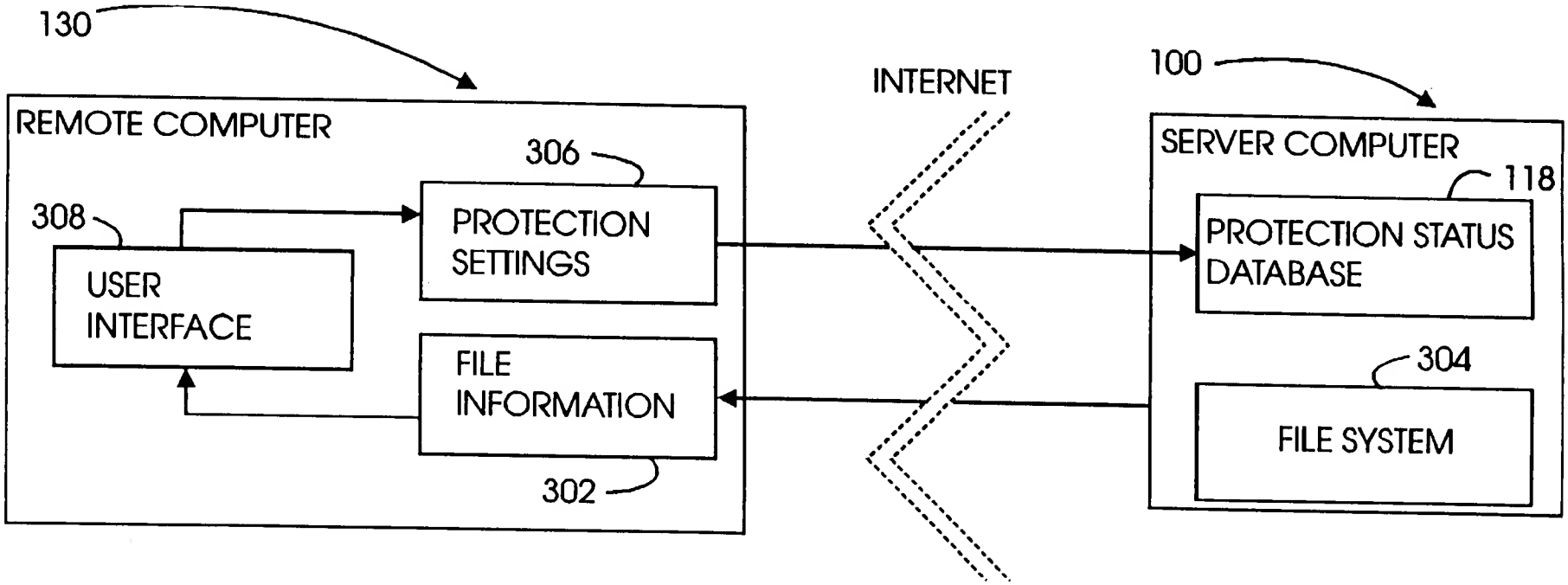
130
REMOTE COMPUTER
306
308
PROTECTION SETTINGS
USER INTERFACE
FILE INFORMATION
302
INTERNET
100
SERVER COMPUTER
118
PROTECTION STATUS DATABASE
304
FILE SYSTEM

FIGURE 3

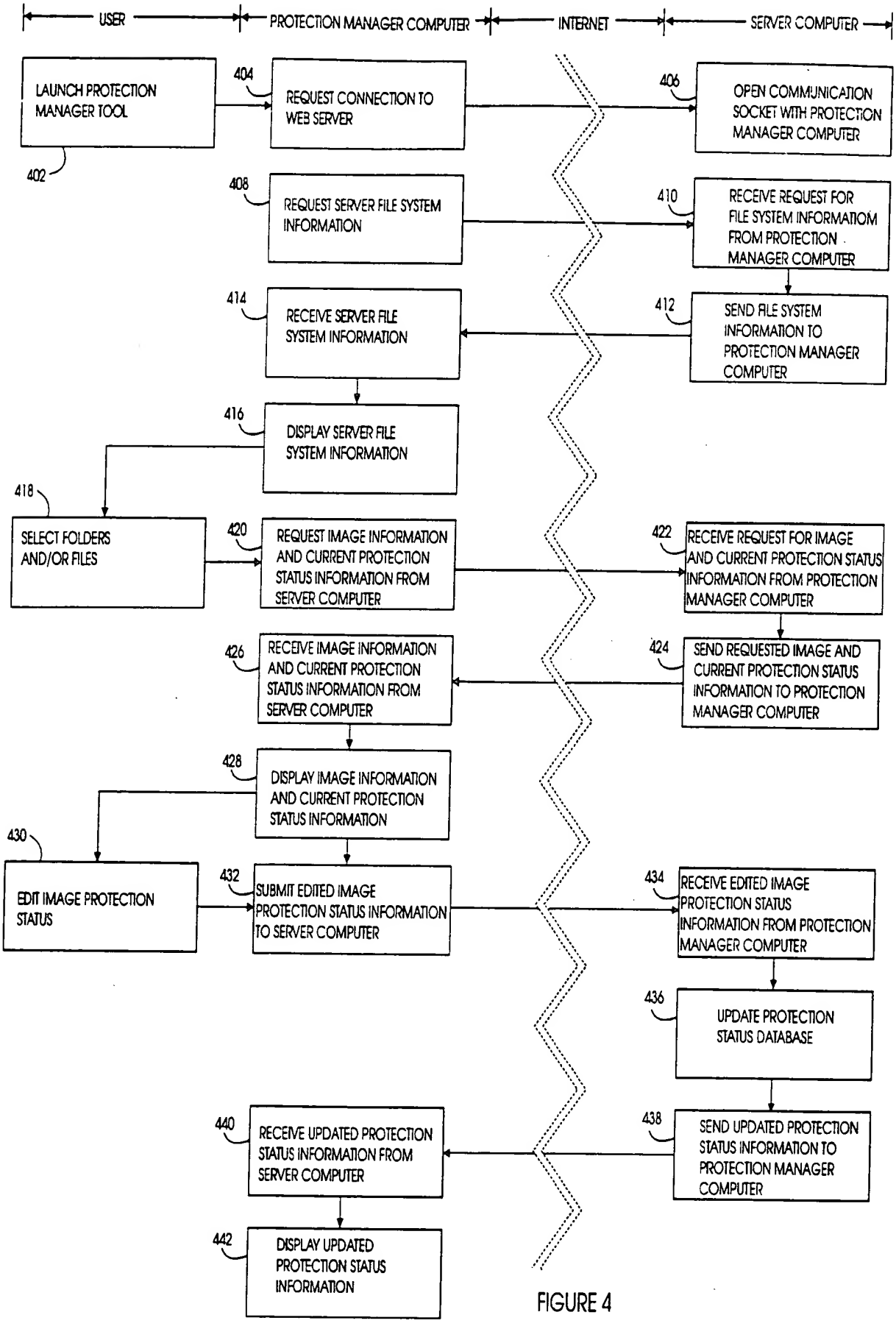
USER
PROTECTION MANAGER COMPUTER
INTERNET
SERVER COMPUTER
LAUNCH PROTECTION MANAGER TOOL
402
404
REQUEST CONNECTION TO WEB SERVER
406
OPEN COMMUNICATION SOCKET WITH PROTECTION MANAGER COMPUTER
408
REQUEST SERVER FILE SYSTEM INFORMATION
410
RECEIVE REQUEST FOR FILE SYSTEM INFORMATION FROM PROTECTION MANAGER COMPUTER
412
SEND FILE SYSTEM INFORMATION TO PROTECTION MANAGER COMPUTER
414
RECEIVE SERVER FILE SYSTEM INFORMATION
416
DISPLAY SERVER FILE SYSTEM INFORMATION
418
SELECT FOLDERS AND/OR FILES
420
REQUEST IMAGE INFORMATION AND CURRENT PROTECTION STATUS INFORMATION FROM SERVER COMPUTER
422
RECEIVE REQUEST FOR IMAGE AND CURRENT PROTECTION STATUS INFORMATION FROM PROTECTION MANAGER COMPUTER
424
SEND REQUESTED IMAGE AND CURRENT PROTECTION STATUS INFORMATION TO PROTECTION MANAGER COMPUTER
426
RECEIVE IMAGE INFORMATION AND CURRENT PROTECTION STATUS INFORMATION FROM SERVER COMPUTER
428
DISPLAY IMAGE INFORMATION AND CURRENT PROTECTION STATUS INFORMATION
430
EDIT IMAGE PROTECTION STATUS
432
SUBMIT EDITED IMAGE PROTECTION STATUS INFORMATION TO SERVER COMPUTER
434
RECEIVE EDITED IMAGE PROTECTION STATUS INFORMATION FROM PROTECTION MANAGER COMPUTER
436
UPDATE PROTECTION STATUS DATABASE
438
SEND UPDATED PROTECTION STATUS INFORMATION TO PROTECTION MANAGER COMPUTER
440
RECEIVE UPDATED PROTECTION STATUS INFORMATION FROM SERVER COMPUTER
442
DISPLAY UPDATED PROTECTION STATUS INFORMATION

FIGURE 4

09509T 225260

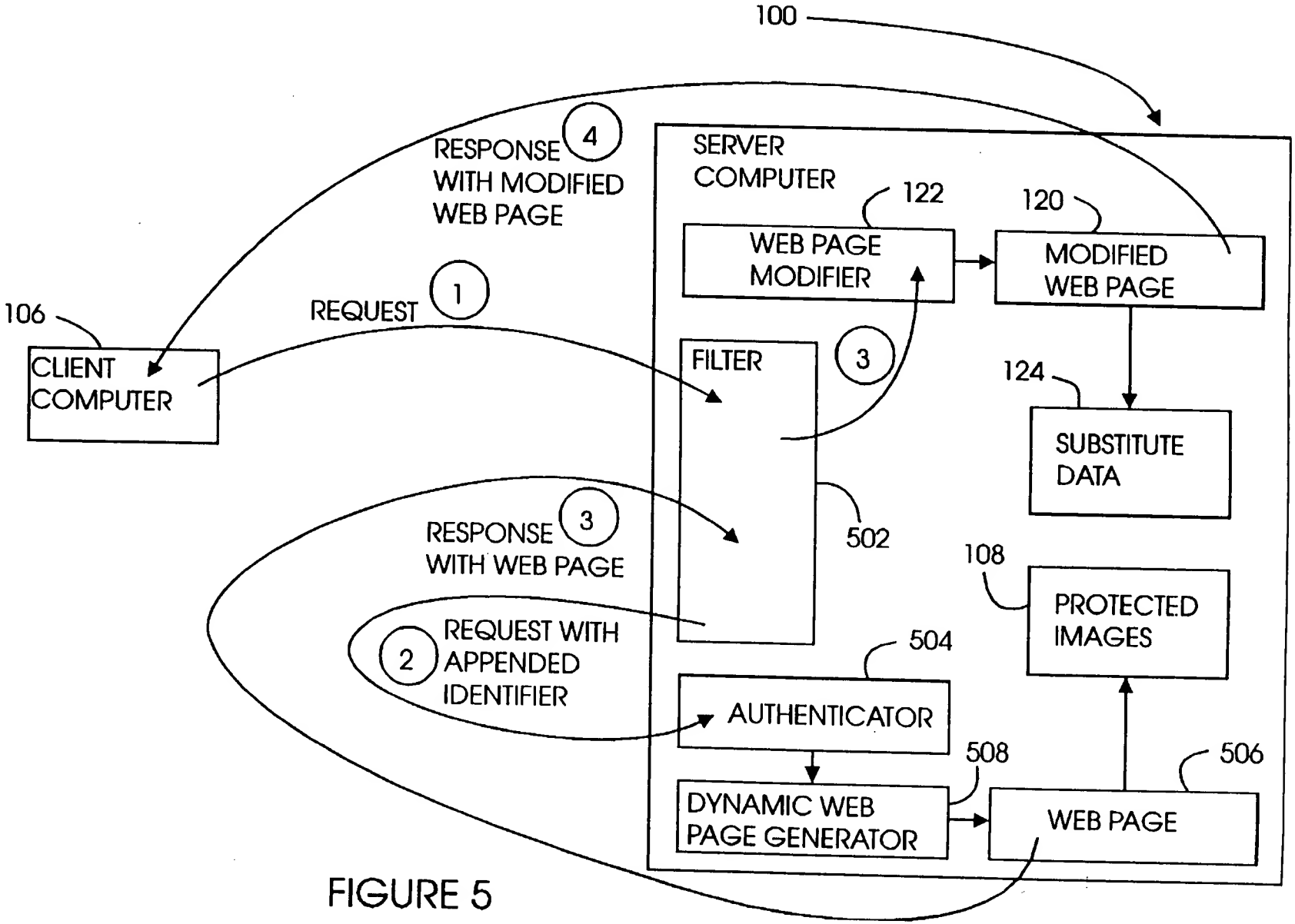

FIGURE 5

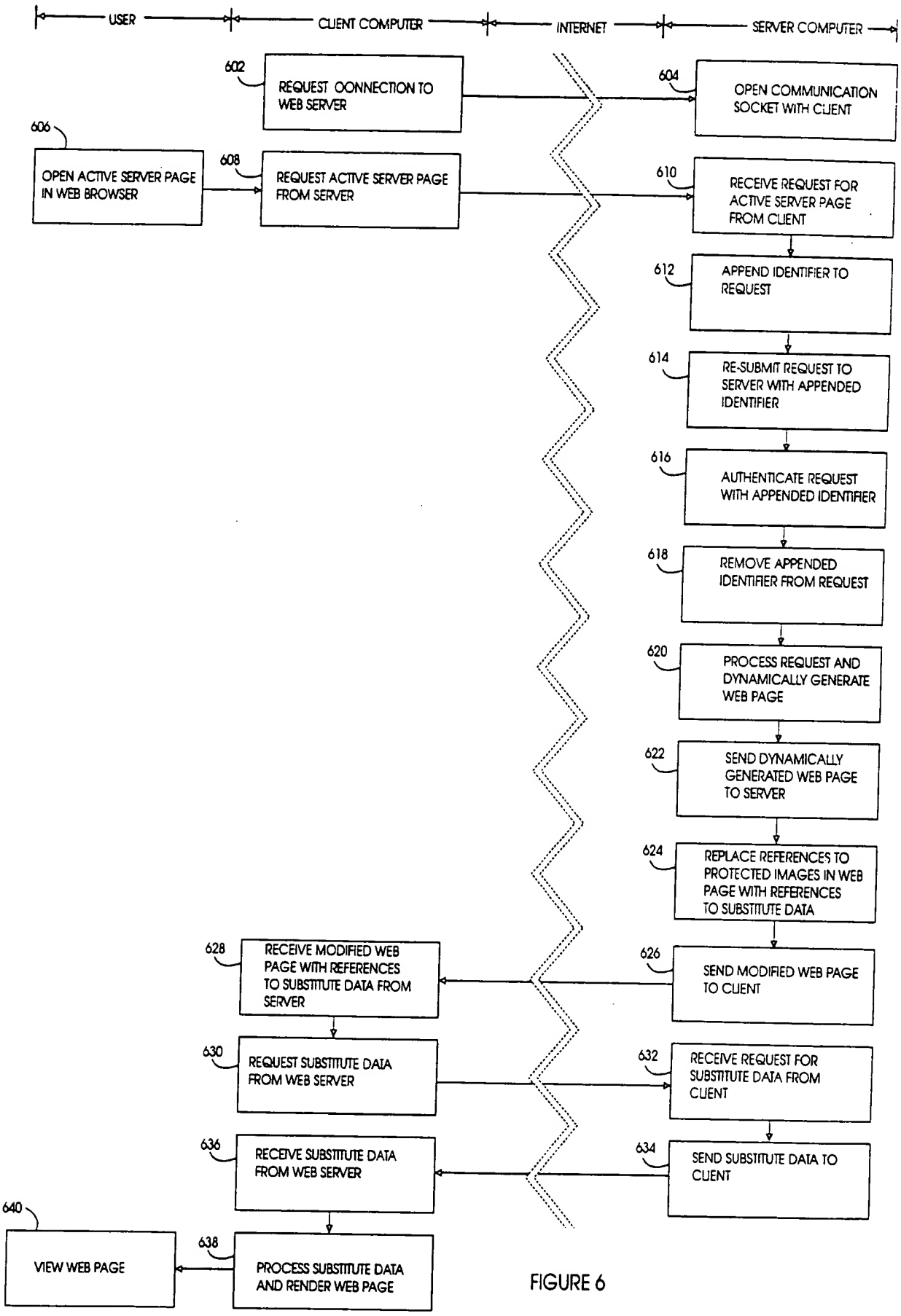
USER
CLIENT COMPUTER
INTERNET
SERVER COMPUTER
602
REQUEST OONNECTION TO WEB SERVER
604
OPEN COMMUNICATION SOCKET WITH CLIENT
606
OPEN ACTIVE SERVER PAGE IN WEB BROWSER
608
REQUEST ACTIVE SERVER PAGE FROM SERVER
610
RECEIVE REQUEST FOR ACTIVE SERVER PAGE FROM CLIENT
612
APPEND IDENTIFIER TO REQUEST
614
RE-SUBMIT REQUEST TO SERVER WITH APPENDED IDENTIFIER
616
AUTHENTICATE REQUEST WITH APPENDED IDENTIFIER
618
REMOVE APPENDED IDENTIFIER FROM REQUEST
620
PROCESS REQUEST AND DYNAMICALLY GENERATE WEB PAGE
622
SEND DYNAMICALLY GENERATED WEB PAGE TO SERVER
624
REPLACE REFERENCES TO PROTECTED IMAGES IN WEB PAGE WITH REFERENCES TO SUBSTITUTE DATA
626
SEND MODIFIED WEB PAGE TO CLIENT
628
RECEIVE MODIFIED WEB PAGE WITH REFERENCES TO SUBSTITUTE DATA FROM SERVER
630
REQUEST SUBSTITUTE DATA FROM WEB SERVER
632
RECEIVE REQUEST FOR SUBSTITUTE DATA FROM CLIENT
634
SEND SUBSTITUTE DATA TO CLIENT
636
RECEIVE SUBSTITUTE DATA FROM WEB SERVER
638
PROCESS SUBSTITUTE DATA AND RENDER WEB PAGE
640
VIEW WEB PAGE

FIGURE 6

Microsoft Exhibit 1018

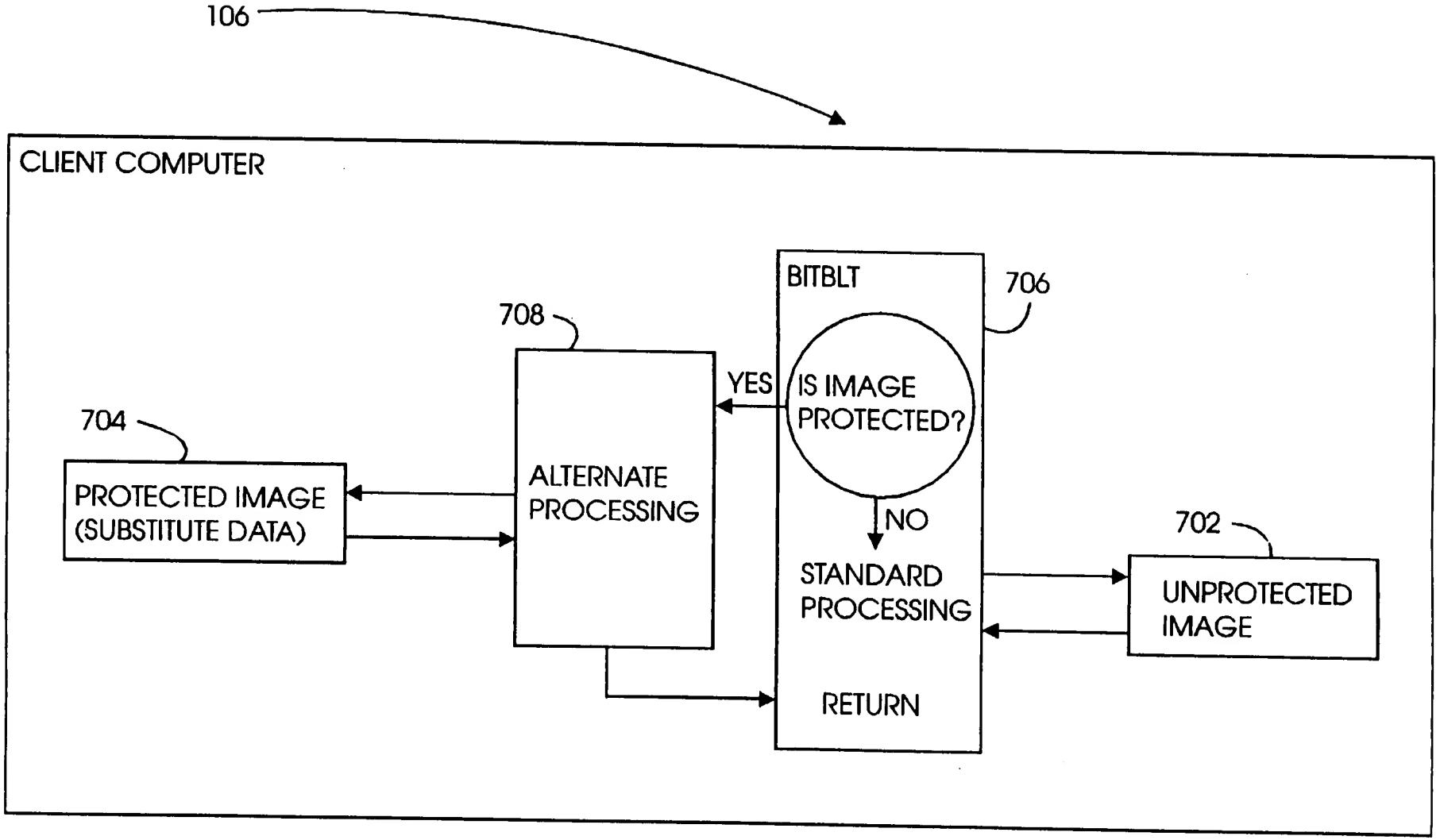

FIGURE 7

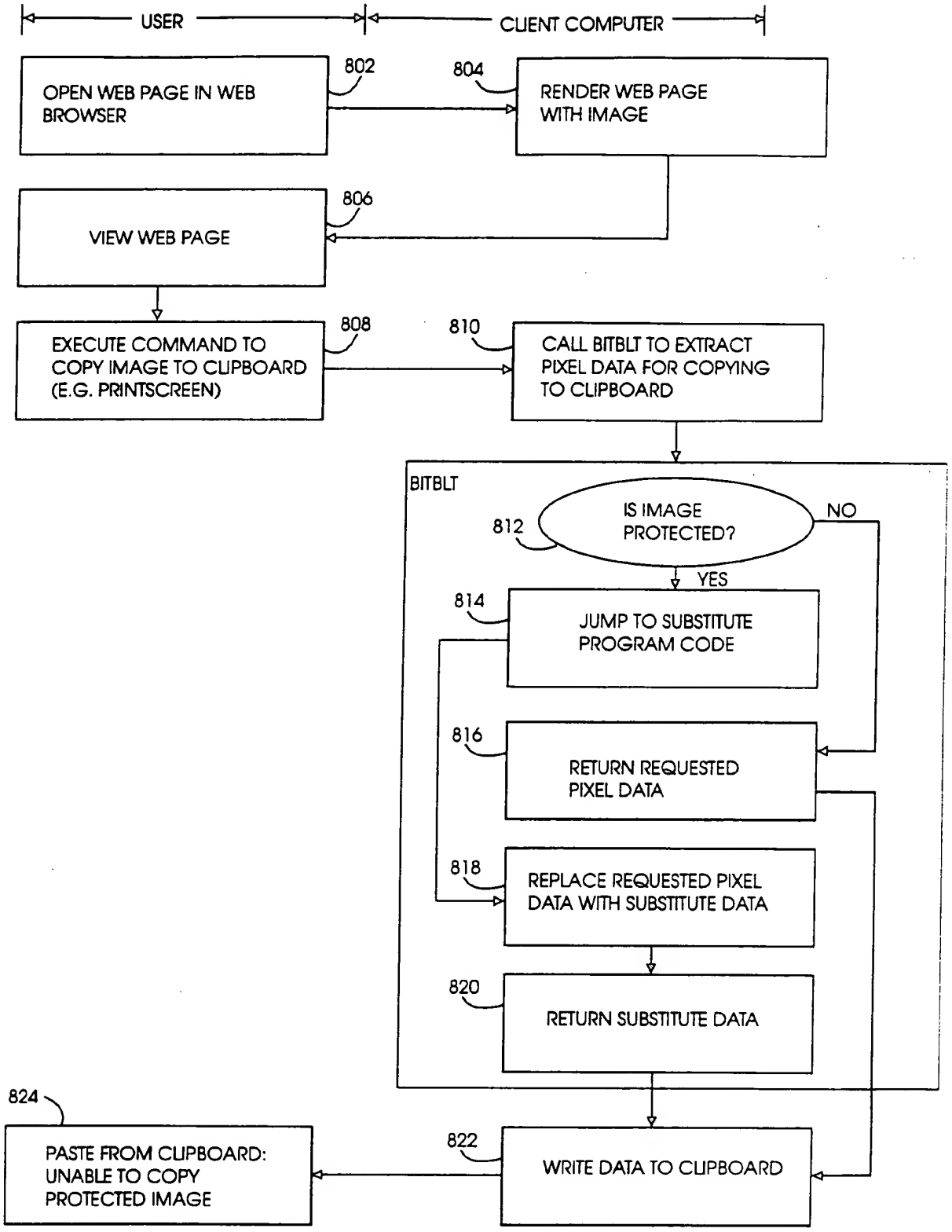
USER
CLIENT COMPUTER
OPEN WEB PAGE IN WEB BROWSER
802
804
RENDER WEB PAGE WITH IMAGE
VIEW WEB PAGE
806
EXECUTE COMMAND TO COPY IMAGE TO CLIPBOARD (E.G. PRINTSCREEN)
808
810
CALL BITBLT TO EXTRACT PIXEL DATA FOR COPYING TO CLIPBOARD
BITBLT
IS IMAGE PROTECTED?
812
NO
YES
814
JUMP TO SUBSTITUTE PROGRAM CODE
816
RETURN REQUESTED PIXEL DATA
818
REPLACE REQUESTED PIXEL DATA WITH SUBSTITUTE DATA
820
RETURN SUBSTITUTE DATA
824
PASTE FROM CLIPBOARD: UNABLE TO COPY PROTECTED IMAGE
822
WRITE DATA TO CLIPBOARD

FIGURE 8

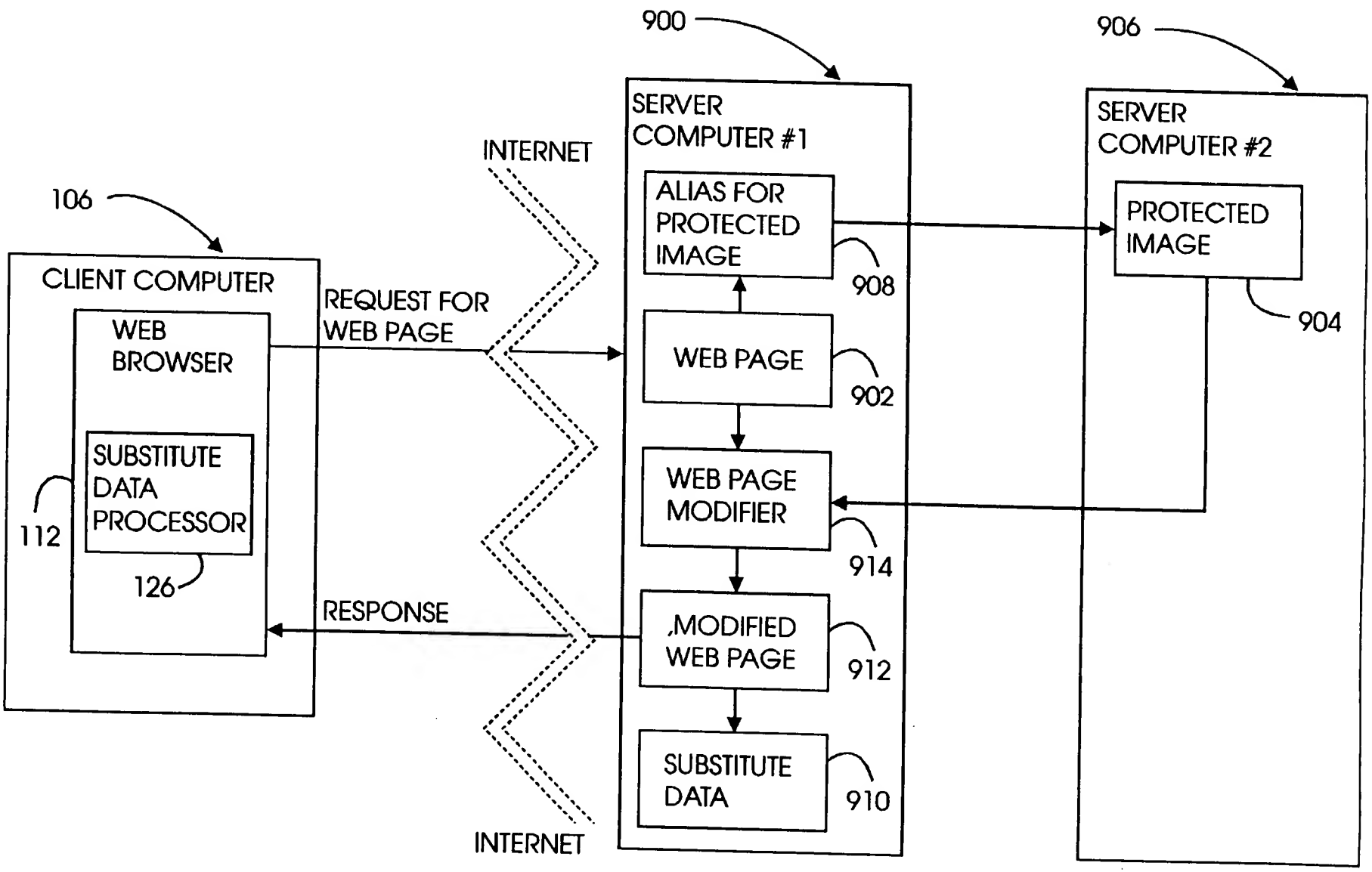
900
906
SERVER COMPUTER #1
SERVER COMPUTER #2
INTERNET
106
CLIENT COMPUTER
ALIAS FOR PROTECTED IMAGE
908
PROTECTED IMAGE
904
REQUEST FOR WEB PAGE
WEB BROWSER
WEB PAGE
902
SUBSTITUTE DATA PROCESSOR
112
126
WEB PAGE MODIFIER
914
RESPONSE
MODIFIED WEB PAGE
912
SUBSTITUTE DATA
910
INTERNET

FIGURE 9

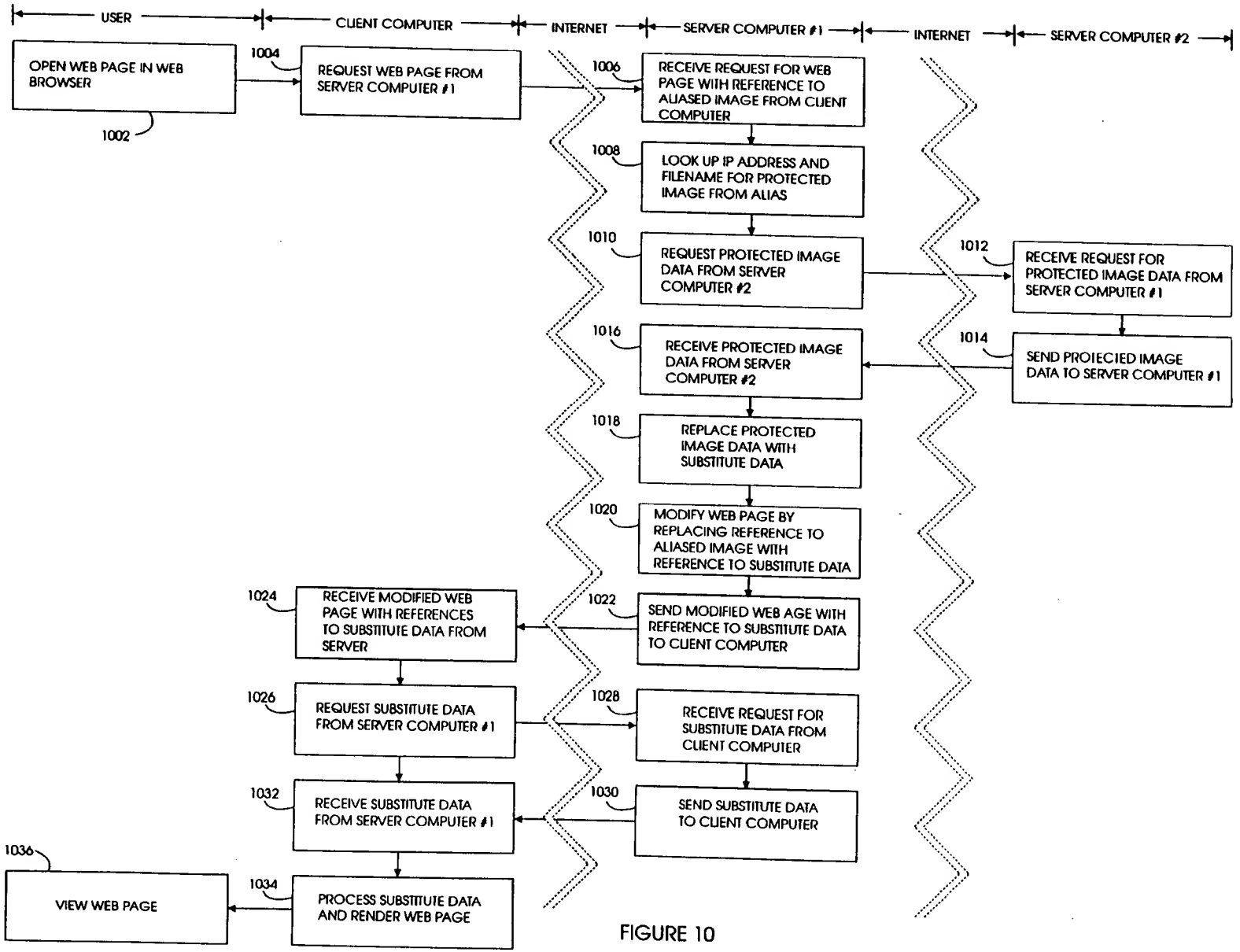
USER
CLIENT COMPUTER
INTERNET
SERVER COMPUTER #1
INTERNET
SERVER COMPUTER #2
OPEN WEB PAGE IN WEB BROWSER
1002
1004
REQUEST WEB PAGE FROM SERVER COMPUTER #1
1006
RECEIVE REQUEST FOR WEB PAGE WITH REFERENCE TO ALIASED IMAGE FROM CLIENT COMPUTER
1008
LOOK UP IP ADDRESS AND FILENAME FOR PROTECTED IMAGE FROM ALIAS
1010
REQUEST PROTECTED IMAGE DATA FROM SERVER COMPUTER #2
1012
RECEIVE REQUEST FOR PROTECTED IMAGE DATA FROM SERVER COMPUTER #1
1014
SEND PROTECTED IMAGE DATA TO SERVER COMPUTER #1
1016
RECEIVE PROTECTED IMAGE DATA FROM SERVER COMPUTER #2
1018
REPLACE PROTECTED IMAGE DATA WITH SUBSTITUTE DATA
1020
MODIFY WEB PAGE BY REPLACING REFERENCE TO ALIASED IMAGE WITH REFERENCE TO SUBSTITUTE DATA
1022
SEND MODIFIED WEB AGE WITH REFERENCE TO SUBSTITUTE DATA TO CLIENT COMPUTER
1024
RECEIVE MODIFIED WEB PAGE WITH REFERENCES TO SUBSTITUTE DATA FROM SERVER
1026
REQUEST SUBSTITUTE DATA FROM SERVER COMPUTER #1
1028
RECEIVE REQUEST FOR SUBSTITUTE DATA FROM CLIENT COMPUTER
1030
SEND SUBSTITUTE DATA TO CLIENT COMPUTER
1032
RECEIVE SUBSTITUTE DATA FROM SERVER COMPUTER #1
1034
PROCESS SUBSTITUTE DATA AND RENDER WEB PAGE
1036
VIEW WEB PAGE

FIGURE 10

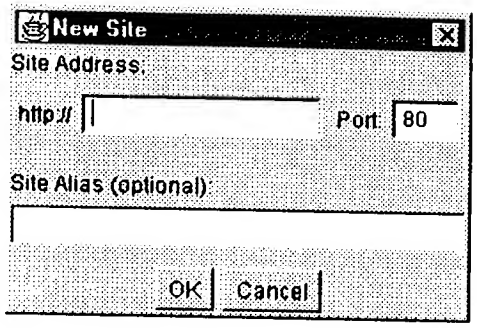

FIGURE 11

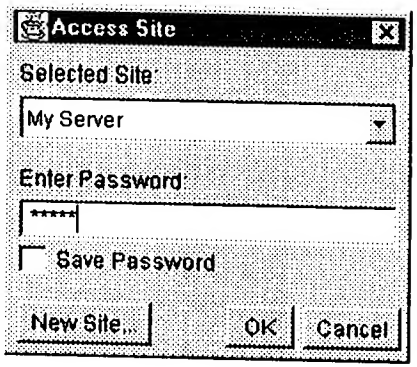

FIGURE 12

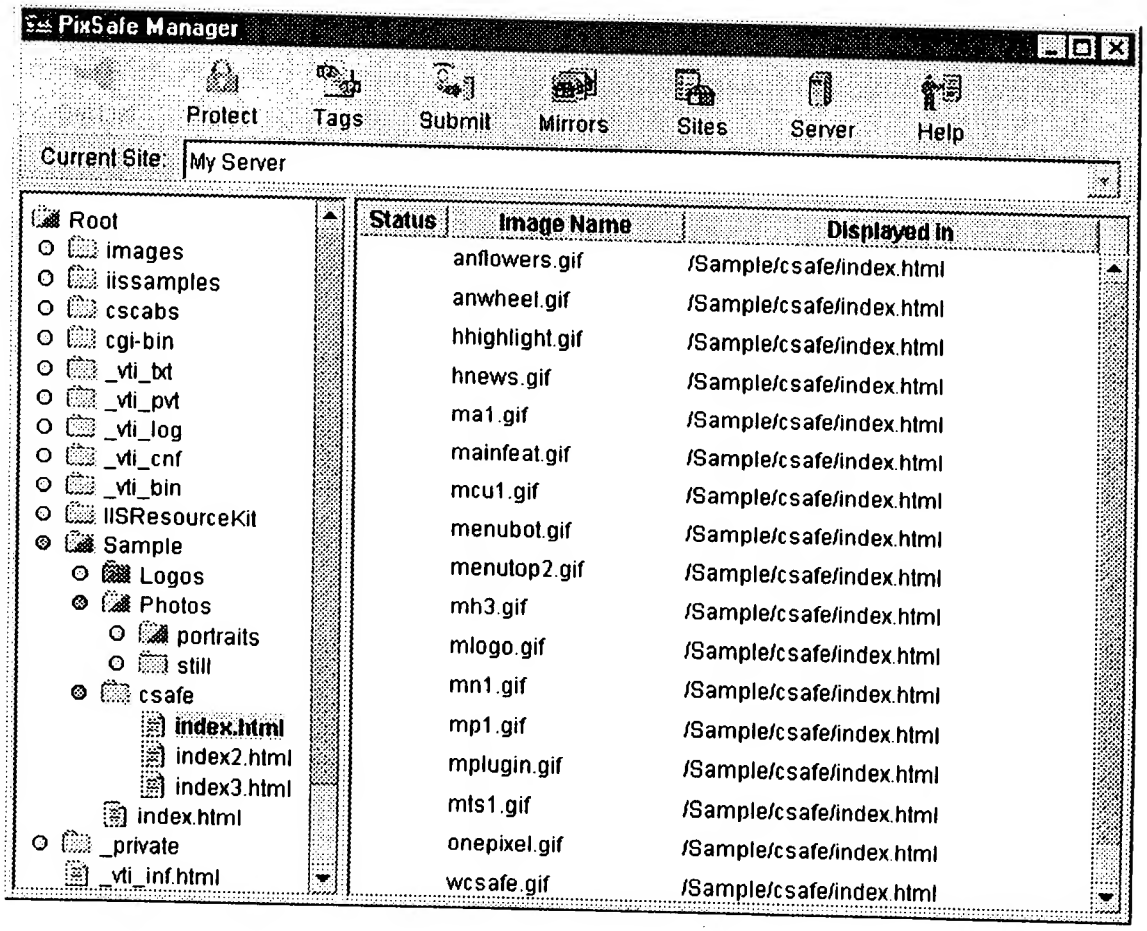
PixSafe Manager
Protect
Tags
Submit
Mirrors
Sites
Server
Help
Current Site:
My Server
Root
images
iissamples
cscabs
cgi-bin
_vti_txt
_vti_pvt
_vti_log
_vti_cnf
_vti_bin
IISResourceKit
Sample
Logos
Photos
portraits
still
csafe
index.html
index2.html
index3.html
index.html
_private
_vti_inf.html
Status
Image Name
Displayed In
anflowers.gif /Sample/csafe/index.html
anwheel.gif /Sample/csafe/index.html
hhighlight.gif /Sample/csafe/index.html
hnews.gif /Sample/csafe/index.html
ma1.gif /Sample/csafe/index.html
mainfeat.gif /Sample/csafe/index.html
mcu1.gif /Sample/csafe/index.html
menubot.gif /Sample/csafe/index.html
menutop2.gif /Sample/csafe/index.html
mh3.gif /Sample/csafe/index.html
mlogo.gif /Sample/csafe/index.html
mn1.gif /Sample/csafe/index.html
mp1.gif /Sample/csafe/index.html
mplugin.gif /Sample/csafe/index.html
mts1.gif /Sample/csafe/index.html
onepixel.gif /Sample/csafe/index.html
wcsafe.gif /Sample/csafe/index.html

FIGURE 13

FIGURE 14

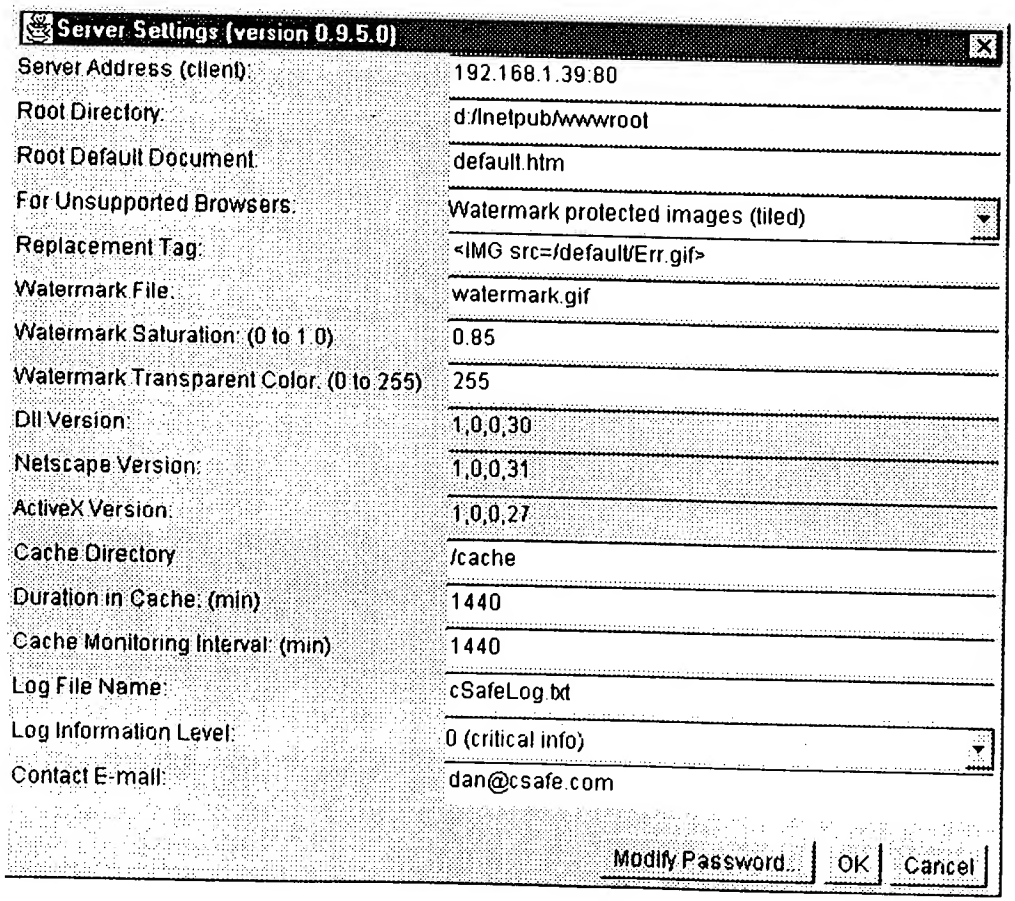

FIGURE 15

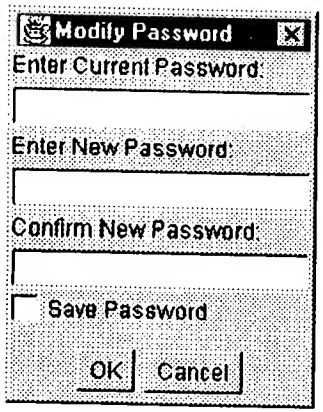

FIGURE 16

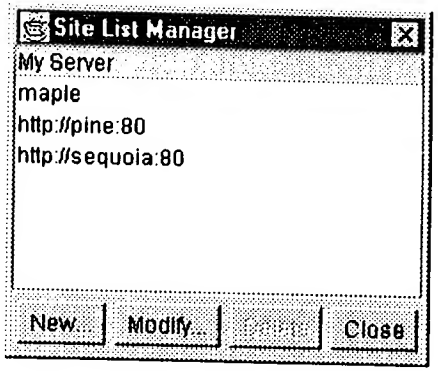

FIGURE 17

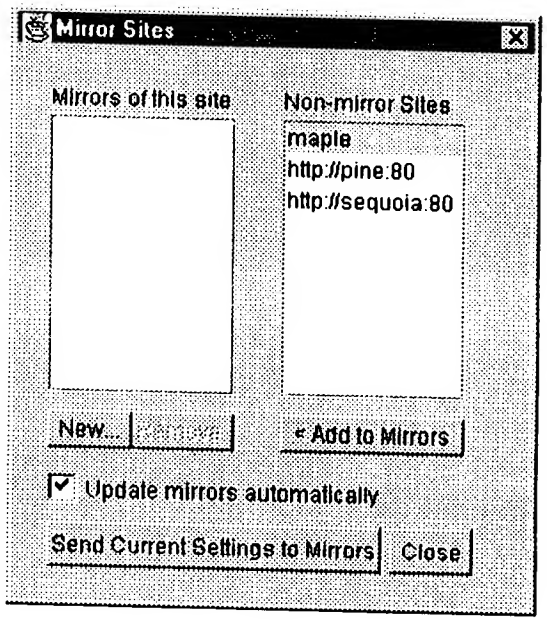

FIGURE 18

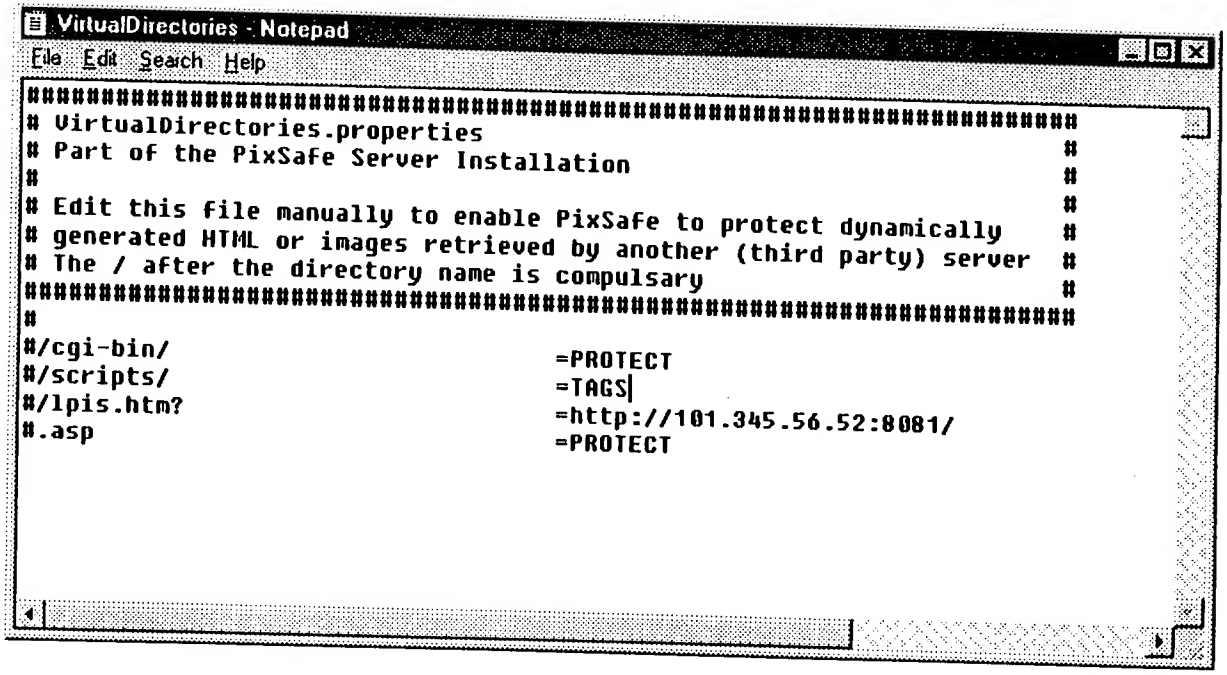
VirtualDirectories - Notepad
File Edit Search Help
VirtualDirectories.properties
Part of the PixSafe Server Installation
Edit this file manually to enable PixSafe to protect dynamically
generated HTML or images retrieved by another (third party) server
The / after the directory name is compulsary
#/cgi-bin/ =PROTECT
#/scripts/ =TAGS
#/lpis.htm? =http://101.345.56.52:8081/
#.asp =PROTECT

FIGURE 19